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## MOLLUSES OF GENEVA, OHIO.

## BY V. STERKI.

About a mile and a half north of Geneva, Ashtabula county, Ohio, in the northeast corner of the state, and about three miles from Lake Erie, there are some low woods, an ancient lake-bottom land. The soil is a sandy clay, and at some places mucky. During spring, the lower parts are more or less covered with water; in summer, the soil often becomes dry as a bone, for weeks and even months.

From 1909 to 1915, I had chances to do more or less collecting there every year, and at various seasons. The following list may be of some interest, for being approximately complete, and for some notes on ecology, etc. Some species found on the open land near those woods, and originally part of them, are added and marked with a \*. The species are numbered for easy reference.

1. Gastrodonta intertexta Binney, common especially at low places where Sphærium occidentale and Succinea ovalis are living, and on which probably they are principally feeding.

2. Zonitoides arboreus Say, common.

3. Z. minusculus Binney, frequent.

4. Z. exiguus Stimpson, common at some places.

5. Z. milium Morse, scarce.

6. *Omphalina fuliginosa* Griffith, not common, and apparently quite scarce in the last years.

7. O. inornata Say, frequent.—Some years ago I found a specimen of *Polygyra thyroides* in the body whorl of which there were two O. inornata, on opposite sides, entered through holes made in the shell; inside of the apical whorls of the same was one *Gastrod. intertexta*; all had been feeding there, and of the victim's body only a few scant remnants were left.

8. Hyalina [Vitrea] indentata Say, not common.

9. H. radiatula Alder (hammonis Ström.), not rare.

10. H. wheatleyi Bland, not rare.

11. H. ferrea Morse, not rare.

12. H. multidentata Binney, rather common.

13. Euconulus chersinus, common.

14. E. sterkii Dall, scarce.

15. Agriolimax campestris, common.

16. \*A. agrestis Linné, in a brick yard near by.

17. Circinaria concava Say, common.

18. Helicodiscus lineatus Say, not rare.

19. Patula [Pyramidula] alternata Say, common.

20. P. perspectiva Say, rather common.

21. \**P. cronkhitei anthonyi* Pilsbry, not in the woods, but outside.

22. Punctum pygm um Draparnaud, common.

23. Sphyradium edentulum Drap., rare.

24. Polygyra albolabris Say, rather scarce.

25. *P. zaleta* Binney, very rare; only one living specimen and a dead shell were found, of a form much larger than the one generally known.

26. *P. thyroides* Say, common, large, with thin shell and lip, and of brownish color, rather different from those found on limestone soil. Repeatedly they were found gathered on and around old ash heaps from brush fires.

27. P. palliata Say, not common.

28. P. tridentata Say, common.

29. P. monodon fraterna Say, scarce.

30. P. hirsuta Say, rather common.

31. Philomycus carolinensis Bosc., rather common.

32. Ph. ohioensis St., MS., a single specimen.

NOTE : In 1900, I found two specimens of this near Chippewa

Lake, Medina Co., O., and then looked for others in vain, for over a dozen years. It is evidently none of the described species; the jaw and radula are different from those of both *carolinensis* and *dorsalis*, but the jaw is more like that of the former, without strong ribs. The other parts of the anatomy have not been examined, and so it remained unpublished. The body, when extended, is about 28 mm. long, slender; the dorsum is tan-colored, without any markings.

33. Ph. dorsalis Binney, not scarce.

34. Strobilops labyrinthicus Say, rare.

35.\* Vallonia pulchella Müller, not in the woods, commonaround a barn near by.

36.\* V. excentrica Sterki, with the preceding.

37. Bifidaria contracta Say, common.

38. *B. pentodon* Say, common; variable with respect to the apertural lamellæ and folds.

39. B. minuta Sterki; for description see page 105.

40. B. corticaria Say, scarce.

41. Vertigo gouldii Binney, not rare.

42. V. ovata Say, scarce.

43. V. elatior Sterkii, scarce. Appears to be distinct from ventricosa, to judge by material from a number of States.

44. V. tridentata Wolf, rare.

45. V. milium Gould, rather scarce.

46. Cionella lubrica Müller, rather scarce.

47. Succinea ovalis Say, common.

48. S. retusa Lea, scarce.

49. S. avara Say, scarce.

50. Carychium exiguum Say, scarce.

51. C. exile H. C. Lea, common.

52. Lymnæa parva Lea, scarce.

a. \* L. parva sterkii F. C. Baker (probably, according to F. C. Baker); ditch, outside.

53. L.—.? (small, slender, probably immature), two specimens in siftings, with land snails.

54. Planorbis trivolvis Say, in a permanent pool, or small pond.

55. P. exacutus Say, pools (with 61), not rare.

56. Segmentina armigera Say, rather scarce, but found living, under dead leaves, even after prolonged drought.

57. *Physa gyrina* Say, rather scarce, a small form, under the same conditions as 56 and 60; a larger form is common in a drainage ditch, outside, which is usually dry in summer except after heavy rains.

58. Aplexa hypnorum Linné, with 61, scarce, small; one specimen was found with 53.

59. Amnicola cincinnatiensis Lea, one dead shell was found in a small ditch (with 52 a), far away from a creek.

60. Sphærium occidentale amphibium St., common at lower places in the woods; even after the ground has been dry for weeks, these mussels are found living, at all stages of growth; not found with 61!

61. *Musculium truncatum* Linsley, frequent in pools where water lasts longer, but which are usually dry during summer.

62. \* Pisidium abditum Haldeman, not rare in the ditch mentioned under 57.

It appears to be worth noting that some species have not been found, which should be expected at such a place rather than many of those listed, e. g. Zonitoides nitidus, Enconulus fulvus, Polygyra multilineata, Bifidaria tappaniana.

## NOTES ON MOLLUSCA OF CENTRAL MONTANA.

BY S. STILLMAN BERRY, Redlands, California.

Some two years ago I published in the NAUTILUS (vol. 26, pp. 130–131) a short list of mollusks taken at Winnecook, Meagher County, Montana. Having had occasion to visit the same locality, and hence the opportunity to make further collections, every summer since, it now seems worth while not only to record the additional species which have been found, but to revise the first list in its entirety. A fairly good idea